Nokia Customer Care

4 - Service Tools

Copyright © 2004 Nokia. All Rights Reserved.

[This page intentionally blank]

Copyright © 2004 Nokia. All Rights Reserved.

Table of Contents

Page No

Service Tools 5
List of service tools 5
JVB-1 docking station (product code: 0770298) with DA-16 docking station adapter 7
DA-16 docking station adapter (product code: 0770770) 8
SA-25 antenna coupler (product code: 0770769) 9
SF-17 CCS POS flash adapter (product code: 0770844) 13
MJ-22 module repair jig (product code: 0770843) 14
RJ-17 soldering jig (product code: 0770840) 16
SS-42 camera removal tool (product code: 0780449) 17
ST-13 PA rework stencil (product code: 0770848) 18
Rework procedure 19
RJ-46 antenna switch rework jig (product code: 0780374) 21
ST-15 antenna switch solder paste stencil (product code: 0780412) 21
FPS-8 flash prommer (product code: 0080321) 22
FPS-11 multiprommer (product code: 0770758) 23
ACF-8 universal power supply (product code: 0680032) 23
FLC-2 DC cable (product code: 0730185) 24
AXS-4 service cable (product code: 0730090) 24
XCS-1 service cable (product code: 0730218) 25
SW security device PKD-1 (product code: 0750018) 25
FLS-4S POS (Point Of Sale) flash device (sales pack) 26
PCS-1 Power Cable (Product Code: 0730012) 26
XRF-1 RF cable (product code: 0730085) 27
DAU-9S MBUS cable (product code: 0730108) 27
SCB-3 DC cable (product code: 0730114) 28
XCS-4 modular cable (product code: 073017) 28
CA-5S service battery cable (product code: 0730283) 29
CA-10DS bi-directional parallel cable (product code: 0730298) 29

Copyright © 2004 Nokia. All Rights Reserved.

[This page intentionally blank]

Copyright © 2004 Nokia. All Rights Reserved.

Service Tools

List of service tools

The table below gives a short overview of service tools that can be used for testing, error analysis and repair of product RM-17, refer to various set-ups.

Type Designator	Description	Part Code
	Programme Specific Tools	
MJ-22	Module Jig	0770843
SF-17	POS flash adapter	0770844
DA-16	Docking Station Adapter	0770770
SA-25	RF coupler	0770769
RJ-17	PWB Soldering Rework Jig	0770840
ST-13	uPA Solder Paste Stencil	0770848
RJ-46	Antenna Switch Rework Jig	0780374
ST-15	Antenna Switch Solder Paste Stencil	0780412
Common Service Tools		
RJ-21	uPA Rework Jig	0770849
SS-42	Camera removal tool (replaces SRT-10)	0780449
JBV-1	Docking Station	0770298
FLS-4S	POS flash dongle E&A	0080541
FLS-4S	POS flash dongle APAC	0080542
FLS-4S	POS flash dongle US	0080543
FPS-8	Flash Box	0080321
XCS-1	Service Cable	0730218
XCS-4	Service Cable	0730178
PCS-1	Power Supply Cable	0730012
CA-5S	Service Battery Cable	0730283
DAU-9S	Service Cable	0730108
XRF-1	RF-MEAS. CABLE/DCS1900	0730085
FPS-11	Multiprommer	0770758

Copyright © 2004 Nokia. All Rights Reserved.

Type Designator	Description	Part Code
ACF-8	Universal Power supply	0680032
AXS-4	D9-D9 serial cable	0730090
FLC-2	DC cable	0730185
CA-10DS	Bi-directional parallel cable	0730298
PKD-1	Software protection key	0750018
SCB-3	DC-Cable	0730114
SPS-2	Solder paste spreader	0770471
Programme Specific Service Tool spare parts		
	10pcs 2A fuse for MJ-22 module jig	0770622
	10pcs Test pins for MJ-22 module jig	0770557
	10pcs Test pins for MJ-22 module jig	0770442
	1pc Wing screw M3x20 for MJ-22 module jig	6290801
	10pcs Test pins for SF-17 POS flash adaptor	0770450
	10pcs Flash interface pins for DA-16 docking station adaptor	0770754
	10pcs SIM interface pins for DA-16 docking station adaptor	0780447

Copyright © 2004 Nokia. All Rights Reserved.

JVB-1 docking station (product code: 0770298) with DA-16 docking station adapter

The JVB-1 docking station has been designed for calibration and software update use. The DA-16 docking station adapter makes signal connections to the phone. JVB-1 and DA-16 are used as one unit.

JVB-1 main electrical functions include the following:

- adjustable VBATT calibration voltage, current measurement limit voltage “VCHAR”, current measurement calibration “ICHAR”
- adjustable ADC calibration voltage via BTEMP and BSI signal
- BTEMP and BSI calibration resistor
- signals from FBUS to the phone via parallel jig
- control via FBUS or USB
- Flash OK/FAIL indication

In calibration mode JVB-1 is powered by external power supply 11-16V DC. In flashing power for the phone can be taken from FPS-8 or external power supply 11-16V DC.

Copyright © 2004 Nokia. All Rights Reserved.

DA-16 docking station adapter (product code: 0770770)

Docking station adapter for assembled RM-17 phones. The docking station adapter supports testing, flashing, energy management calibration. If used in conjunction with the RF-coupler SA-25, also RF function testing is possible.

Features include:

- compatible for JBV-1
- easy phone attachment and detachment
- reliable phone locking
- switch for reliable detection of phone attachment
- replaceable test pins
- internal SIM holder with interface to phone SIM reader

Spare parts:

- Flash interface pins (10pcs): 0770754
- SIM interface pins (10pcs): 0780447

View of DA-16

Copyright © 2004 Nokia. All Rights Reserved.

SA-25 antenna coupler (product code: 0770769)

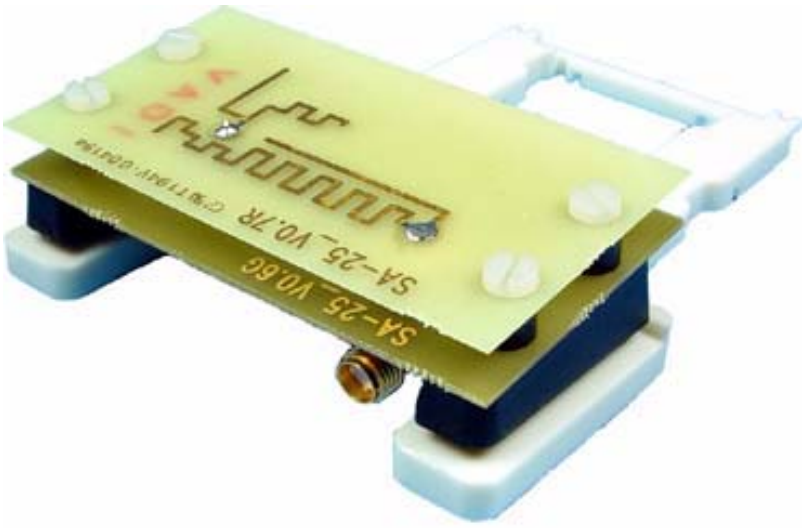
RF antenna coupler for use with the docking station adapter (DA-16).

Extends the docking station adapter to allow RF function tests in GSM bands 850, 900, 1800 and 1900 MHz.

Features include:

- easy attachment to DA-16 without use of tools
- reliable RF connection to phone module under test
- low attenuation and small “ripple” over the width of each GSM band

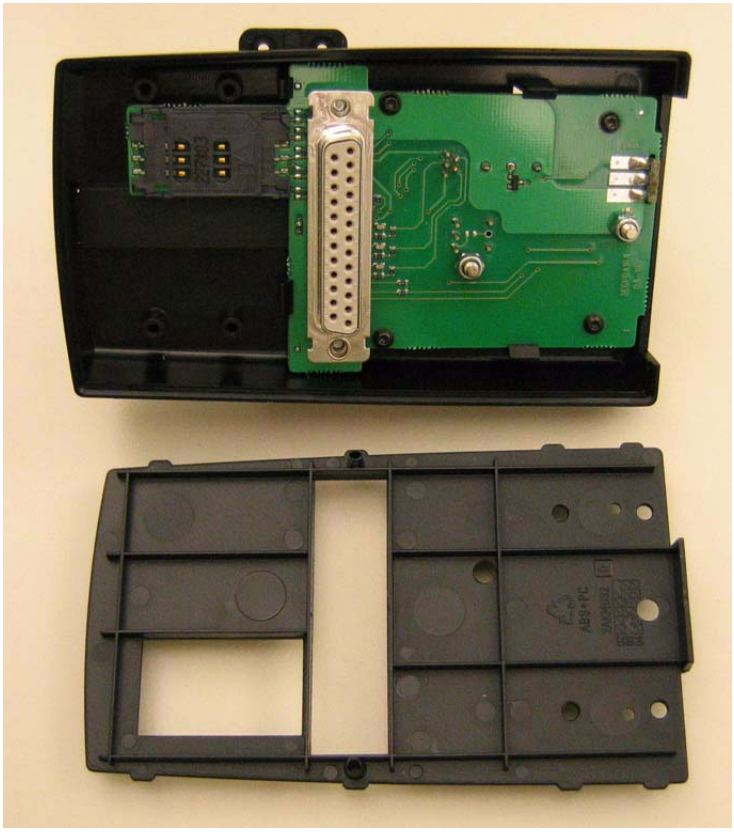
View of SA-25



Copyright © 2004 Nokia. All Rights Reserved.

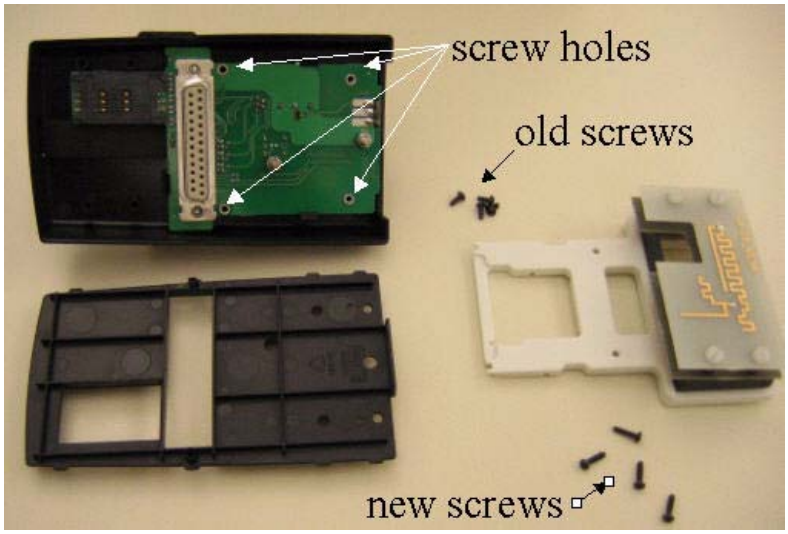
Installing instructions for RF coupler to docking station adapter

Open the housing by pressing the housing apart. Now you can remove the bottom plate of the docking station adapter.

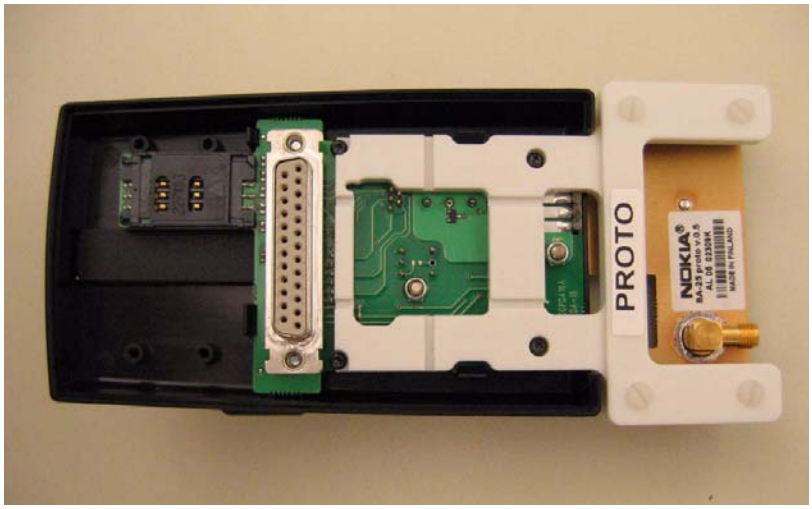


Copyright © 2004 Nokia. All Rights Reserved.

Remove the four screws fixing the PWB by using Torx T6 screw driver. These screws are too short, therefore four longer screws are delivered together with the coupler.

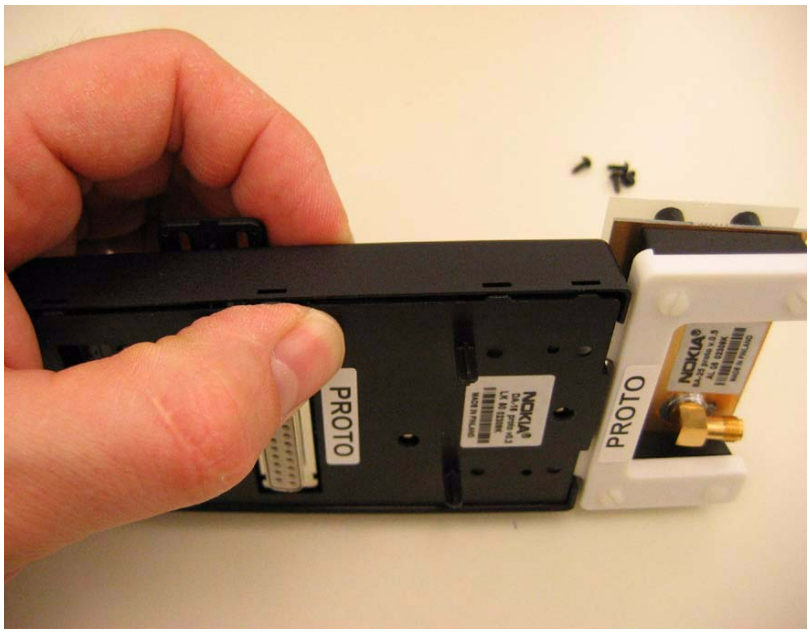


Install the coupler and use the new screws.

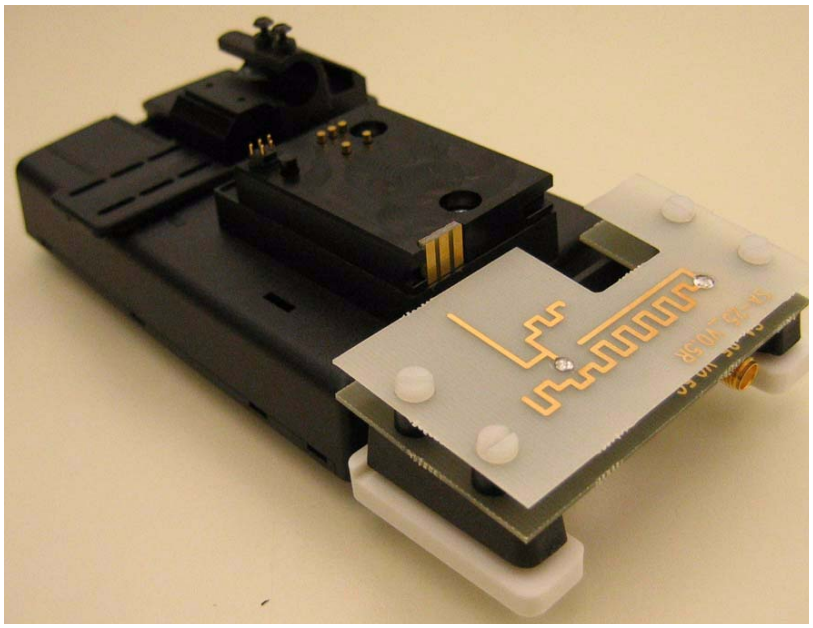


Copyright © 2004 Nokia. All Rights Reserved.

Close the docking station adapter by attaching the bottom plate.



Ready.



Copyright © 2004 Nokia. All Rights Reserved.

SF-17 CCS POS flash adapter (product code: 0770844)

Point of sales flash adapter for RM-17 phones.

SF-17 establishes a simple environment for SW update purposes and connects to the same flash test pattern and the phone battery contacts.

Features include:

- flashing and testing of the attached phone
- overvoltage and reverse polarity protection of adapter and attached phone
- green LED: power supply valid and attached to the phone (3.5V<Vcc<7V)
- red LED: overvoltage condition, phone power supply disconnected (Vcc>7V)
- shielded 10-pin Western connector towards flash equipment or PC
- 3mm DC-jack for phone and adapter power supply
- phone battery contacts (VCC, GND, BSI)
- flash test pattern pins

View of SF-17

Spare parts

There are no serviceable parts inside SF-17, and SF-17 is not designed for disassembly. Only serviceable part are the spring loaded test pins that can be replaced without soldering and disassembly. Used test pin type is SX-1-J-2.0-G from manufacturer IDI.

Bent pins can be extracted from adapter's receptacle using a tool. Torn off pins can be replaced using a slowly spinning 0.8 mm. For more detail, please refer to the Service Tool Troubleshooting section.

Test pins (10pcs / plastic bag)	NMP 0770450

Copyright © 2004 Nokia. All Rights Reserved.

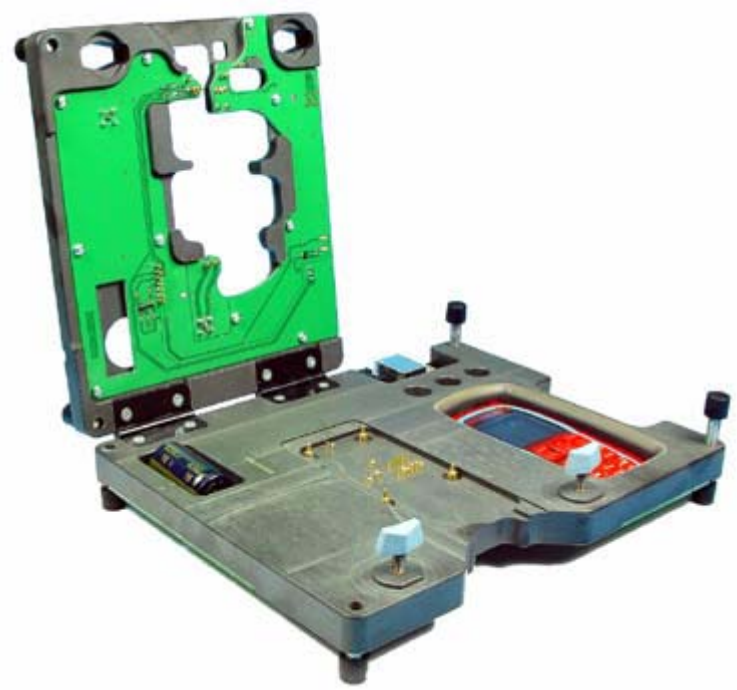
MJ-22 module repair jig (product code: 0770843)

Repair Jig for RM-17 phone module that allows full phone function.

General features include:

- easy phone module insertion and removal, proven jig locking mechanism
- ESD-proof base material and jig design
- unlimited operation of a disassembled phone module
- unrestricted access to phone module components
- access to system connector for accessory testing
- jig SIM holder with interface to phone SIM reader
- the installed UI module on the module jig allows key and display function test
- microphone, ear speaker and integrated handsfree speaker supplied on jig for testing
- LOCAL/NORMAL switch
- access to phone module POWER-ON push-button
- quick and easy repair of jig components

View of MJ-22



Power supply features

- jig and phone power supply via 3mm DC jack, fuse
- power stabilization and voltage regulator on jig (can be bypassed by jumper)
- reverse and over-voltage protection of jig and phone module

Copyright © 2004 Nokia. All Rights Reserved.

Communication and status LED's

- green: Power supply
- green: MBUS activity
- orange: FBUS activity
- jumper to disable LED's for precise phone module current consumption measurements

Spare parts

- spring loaded test pins (used in upper part, can be replaced by soldering)
  - Test pins (10pcs / plastic bag) 0770442
- both ends spring loaded test pin (used in lower part, can be replaced by hand after disassembly of lower PCB)
  - Test pins (10pcs / plastic bag) 0770557
- fuse inside holder
  - Fuses (10 pcs) 0770622
- wing screw M3x20
  - Replacement part (1pc) 6290801

Usage hints

- **Before first use,** verify setting of power supply jumper on the rear (=bottom PCB) of the jig; if power supply is >4.2 V, make sure jumper enables power regulation of the jig in order to prevent overvoltage for the phone module under test and the jig.
- In case of **flashing problems** in the jig, verify the switch on the upper part of the jig is in position "Flash"; position "Accessory" is intended for ACI tests with connected ACI-communication enabled accessories, such as car kits or camera headsets.
- When shielding lids are removed from the shielding frame on the PWB, new shielding lids must be used for proper closing of the shielding. It is not allowed to re-use the removed ones.

Copyright © 2004 Nokia. All Rights Reserved.

RJ-17 soldering jig (product code: 0770840)

Soldering jig is used for module level repair, either as fixation in µBGA rework places or when there is need to hold a module on the work bench for any other repair.

Features include:

- convenient locking mechanism
- four (optional mount) rubber feet allow usage also on repair benches
- fixation of phone module in both ways possible (bottom or top side up)
- ESD proof material
- standard uBGA jig thickness and outer dimensions

View of RJ-17

Copyright © 2004 Nokia. All Rights Reserved.

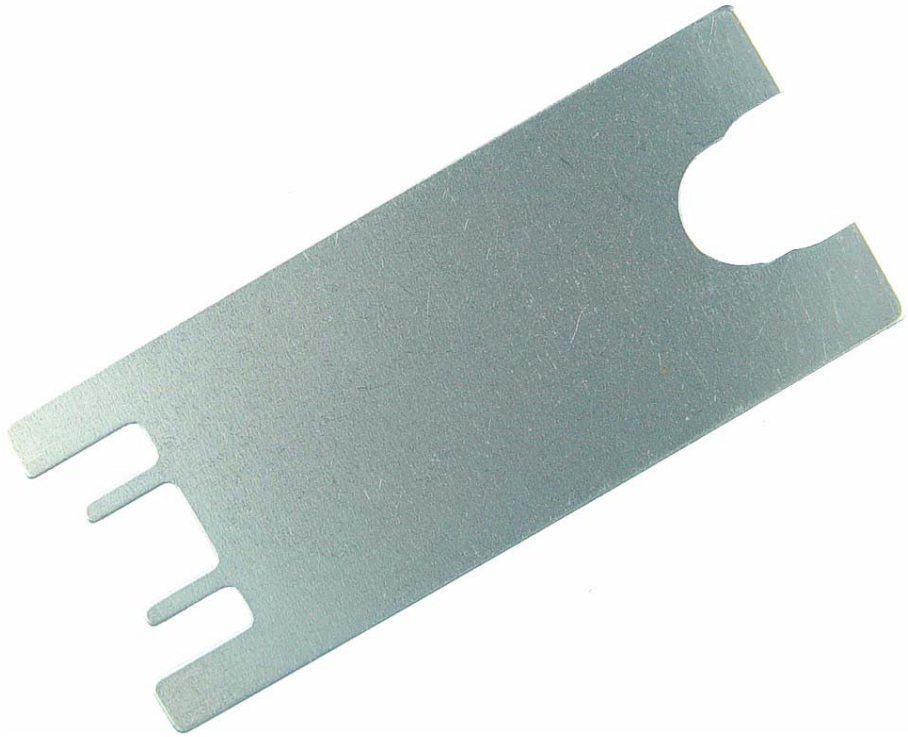
SS-42 camera removal tool (product code: 0780449)

Used to unlock and lift out camera module.

Note: Replaces SRT-10 which can only be used for unlocking

View of SS-42

.



Copyright © 2004 Nokia. All Rights Reserved.

ST-13 PA rework stencil (product code: 0770848)

The PA rework stencil is reused from RH-23.

SK-9	PA rework kit	0274819

containing

RJ-21	PA rework jig (designed for RH-23 and RM-17)
ST-11	PA rework stencil (designed for RH-23)

For RM-17 power amplifier repairs, the following stencil is needed instead of the above mentioned stencil (to be ordered separately).

ST-13	PA rework stencil (designed for RM-17)	0770848

If spreader is needed, please refer to

SPS-2	Spreader	0770471

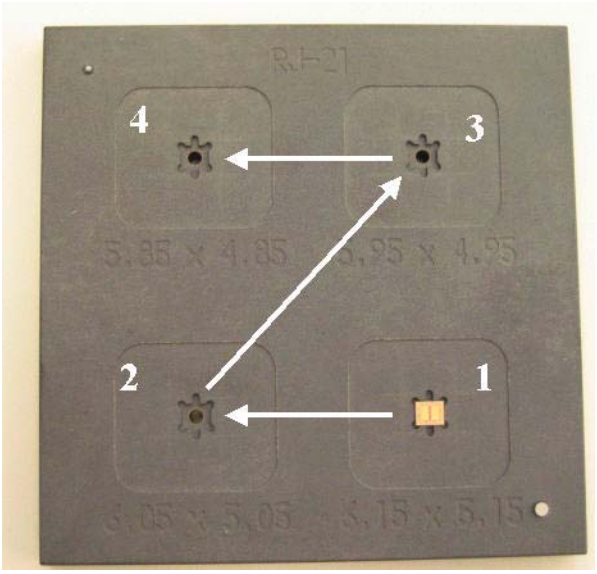
Note: For RM-17, another stencil than the one included in the rework kit SK-9 is needed, because another PWB pad layout is used. Therefore, ensure that for RM-17 the stencil ST-13 is used for PA repairs.

Copyright © 2004 Nokia. All Rights Reserved.

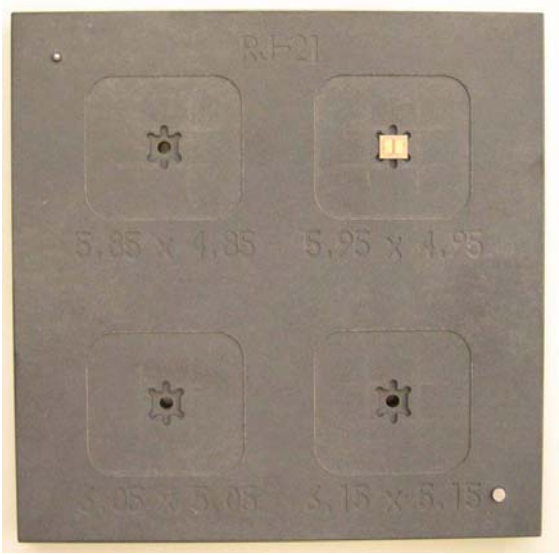
Rework procedure

Due to the large mechanical tolerance of the power amplifiers, the following procedure is necessary:

1. Put the power amplifier into the RJ-21 rework jig. The PA should be placed in the best fit location, this is determined by placing it in the largest location first, if this is to large reposition the PA in the next size location. This should be carried out until the best fit location is found.



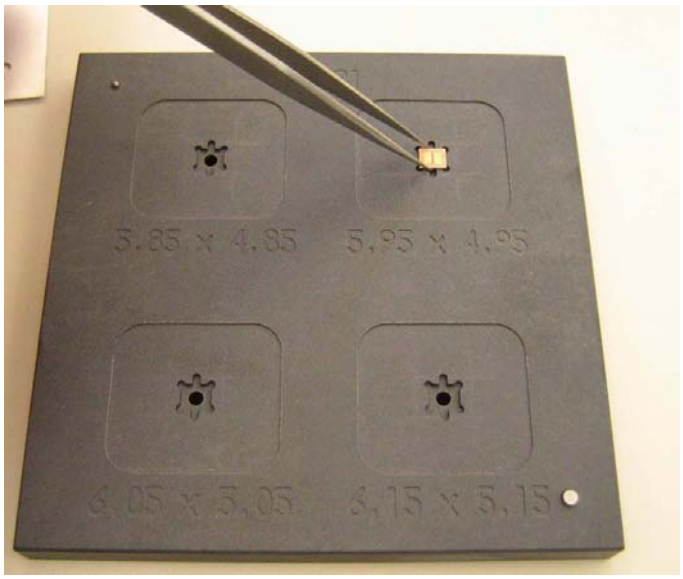
2. Once the best fit location has been found, leave the PA there and put the stencil on top of the jig and PA.



3. Put soldering paste on the PA properly.

Copyright © 2004 Nokia. All Rights Reserved.

4. Remove the stencil and the PA from the jig.



5. Start the soldering process.

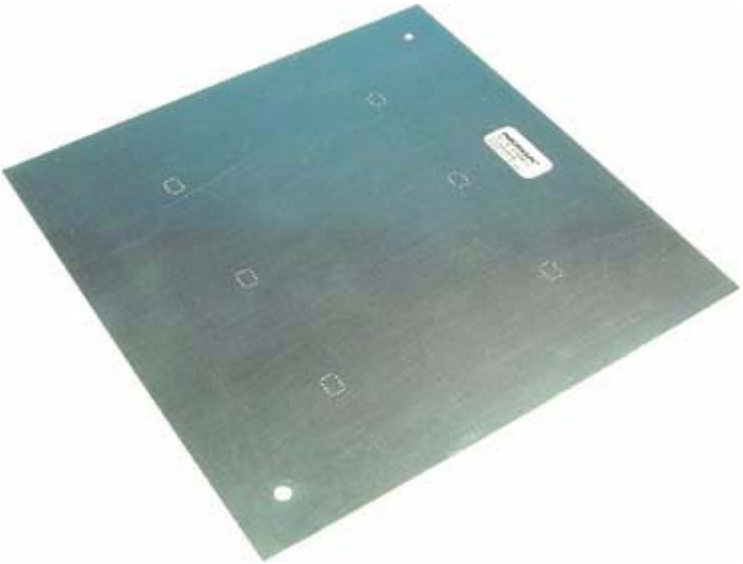
Copyright © 2004 Nokia. All Rights Reserved.

- **RJ-46 antenna switch rework jig (product code: 0780374)**

View of RJ-46

- **ST-15 antenna switch solder paste stencil (product code: 0780412)**

View of ST-15



Copyright © 2004 Nokia. All Rights Reserved.

FPS-8 flash prommer (product code: 0080321)

The flash prommer FPS-8 is used with e.g. docking station (+adapter) or the POS flash adapter. Power is supplied to FPS-8 from the universal power supply.

The sales pack includes the following hardware items:

- FPS-8 flash prommer: 0750123
- ACF-8 universal power supply: 0680032
- AXS-4 service cable (D9-D9): 0730090
- CA-10DS bi-directional parallel cable

View of FPS-8

Copyright © 2004 Nokia. All Rights Reserved.

FPS-11 multiprommer (product code: 0770758)

View of FPS-11

ACF-8 universal power supply (product code: 0680032)

ACF-8 universal power supply is used to power FPS-8. ACF-8 has 6 V DC and 2.1 A output.

View of ACF-8

Copyright © 2004 Nokia. All Rights Reserved.

FLC-2 DC cable (product code: 0730185)

The FLC-2 is used to supply a controlled operating voltage.

View of FLC-2

AXS-4 service cable (product code: 0730090)

The AXS-4 D9-D9 service cable is used to connect two 9 pin D connectors e.g. between PC and FPS-8. Cable length is 2 meters.

View of AXS-4

Copyright © 2004 Nokia. All Rights Reserved.

XCS-1 service cable (product code: 0730218)

The XCS-1 service cable is used to connect FLS-4 to SF-17.

View of XCS-1

SW security device PKD-1 (product code: 0750018)

SW security device is a piece of hardware enabling the use of the service software when connected to the parallel (LPT) port of the PC. Without the dongle present it is not possible to use the service software. Printer or any such device can be connected to the PC through the dongle if needed.

Caution: Make sure that you have switched off the PC and the printer before making connections!

Caution: Do not connected the PKD-1 to the serial port. You may damage your PKD-1!

View of SW security device

Copyright © 2004 Nokia. All Rights Reserved.

FLS-4S POS (Point Of Sale) flash device (sales pack)

FLS-4S is a dongle and flash device incorporated into one package, developed specifically for POS use.

Product code

Sales Pack - Europe/Africa	0080541
Sales Pack - APAC	0080542
Sales Pack- US	0080543

View of FLS-4S

PCS-1 Power Cable (Product Code: 0730012)

The PCS-1 power cable (DC) is used to connect e.g. JVB-1 to FPS-8.

View of PCS-1

Copyright © 2004 Nokia. All Rights Reserved.

XRF-1 RF cable (product code: 0730085)

RF cable XRF-1 is used to connect e.g. module jig to RF measurement equipment.

View of XRF-1

DAU-9S MBUS cable (product code: 0730108)

The MBUS cable DAU-9S has a modular connector, and is used with between PC's serial port and e.g. module jig.

View of DAU-9S

Copyright © 2004 Nokia. All Rights Reserved.

SCB-3 DC cable (product code: 0730114)

The DC cable SCB-3 is used to connect e.g. JVB-1 to the phone.

View of SCB-3

XCS-4 modular cable (product code: 073017)

XCS-4 is a shielded cable (one specially shielded conductor) modular cable for flashing and service purposes.

View of XCS-4

Copyright © 2004 Nokia. All Rights Reserved.

CA-5S service battery cable (product code: 0730283)

Charger plug to charger plug service cable.

View of CA-5S

CA-10DS bi-directional parallel cable (product code: 0730298)

Bi-Directional parallel cable included in FPS-8 sales pack.

View of CA-10DS

Copyright © 2004 Nokia. All Rights Reserved.

[This page intentionally blank]

Copyright © 2004 Nokia. All Rights Reserved.